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ABSTRACT

It is now possible to carry forward the work in visual languaging and visual literacy to create a model for language and for cognition. The central hypothesis is that visual sequences are gradually learned, perceived, and "read" by people, but especially by little children, much as languaging is learned, perceived, and read; the "readers" behave as if they are reading a visual language. The essential counterpart of this is that visual sequences are "written" (composed) much as languaging is written and "writers" (composers) behave as if they are writing visual language. There is evidence that the left hemisphere of the brain takes care of writing and printing and the right hemisphere with processing picture sequences. Once the right hemisphere is developed, its interrelationship with the left hemisphere verbal languaging skills can proceed toward cognitive and cultural goals that could not possibly be achieved with either set of languaging skills alone. This is the beginning of the true democracy of the intellect, the most exciting development in the history of man. (VT)

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THE DEMOCRACY OF THE INTELLECT

by

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THE DEMOCRACY OF THE INTELLECT

Friends! Colleagues! Fellow explorers of that ancient, yet suddenly new and strange continent called Visual Languaging! A year ago in the address I made called The Eyeful Power, I spoke about visual languaging and visual literacy and I said "I find this of such commanding importance that I can see no force or question in education that offers so great a hope for an appropriate education to all learners regardless of learning style and certainly no educational question more closely bound with the future of our society and with the great hopes of that society."

During the year that has gradually intervened, nothing has occurred to reduce the assurance I felt when I made those remarks. Quite the contrary, much has occurred in research, in argument, and in practice to strengthen the convictions I shared with you all then. The new research, the new arguments, the new practices, have made it possible to carry forward the work in visual languaging and visual literacy to apply what we now know to the creation of a model for languaging and for cognition, that I would like to share with you now. That model will, I hope, make it possible for you and me, in fact for all of us who work in education, to see and understand the nature of the visually literate young people in our schools and colleges, and to see and understand our own role and relationships with those students more clearly than in the past.

Let's begin with a central hypothesis: The visual sequences of movies, TV, comic strips, and some slide sets and filmstrips, are gradually learned by people, but especially by little children, much as languaging is learned, perceived much as languaging is perceived, and "read" much as languaging is read; the "readers" behave as if they are reading a visual language. Notice that word behave! Now let's consider the second and essential counterpart of the central hypothesis: The visual sequences of movies, TV, comic strips, and some slide sets and filmstrips, are learned by people, but especially by little children, much as languaging is learned, "written" (composed) much as languaging is written, and the "writers" (composers) behave as if they are writing visual language. Notice that word behave again.

In the rest of this presentation, it is important that you bear in mind that the most important single proof that visual languaging is indeed languaging and that visual language is indeed language rests in the fact that people behave as if they are using language.

Is this a kind of revolutionary point of view? No, but it is a somewhat new point of view. Anthropologists and linguists have been talking this way recently. For instance, anthropologist Adam Schaff wrote recently about signs and systems of signs and their relationship to the concept language in an essay published in a three volume

collection called To Honor Roman Jacobson. He said, "It is language which is the point of departure for the conception and interpretation of the sign and not vice versa. Language is the entirety of means servicing the process of human communication and the sign is only a part of this whole; it is determined by the whole, although it also codetermines it. Thus (he says) I want to start from the whole, and not from the part, since it is my conviction that it is only by beginning with the whole process of human communication .....) that we can understand. Schaff then goes on to define a sign as "a material object" for instance, a picture or sequence of pictures, or "a material event" for instance, a gesture of the hand or a sequence of pictures of such a gesture. What is fascinating to me in Schaff's point of departure for studying signs as merely part of the reality of human languaging and his definition of the sign is that he was not talking about pictures used as signs. In my view, this makes what he had to say, for our purposes, more powerful.

With these twin hypotheses in mind let's look at civilization and education. Let's look at them together because our civilizations are ways of life we value, and education is the means of perpetuating what we value. How, as a civilization, did we get to be the way we are? And, how, through education, did we get to perpetuate the achievements we have valued? Dr. Francis L. K. Hsu in his book The Study of Literate Civilizations indicates that a first requirement for a literate civilization is a "body of literature." In fact, what is evident is that a literate civilization is one which has been literate long enough to have accumulated a wealth of "written" material of all sorts upon which can then rest a set of intellectual traditions, religious traditions, historical traditions, legal, scientific, economic and other procedures and traditions and so on.

What is a body of literature? We think at once of a pile of books! But, in the context of visual languaging and the hypothesis underlying this presentation, may we not now seriously consider that in movies and television we have already created a substantial body of what might be called visual literature.

From the standpoint of the creation of a civilization, and from the standpoint of education, what does a body of literature permit mankind to do? A fascinating set of ideas orbits around a term called distancing. The term was I believe first used by Dr. Irving Sigel, a much respected educational researcher. The term was not used by Jacob Bronowski, but concepts Bronowski regarded as important are full of echoes of the distancing idea. Distancing as we will discuss it here is not quite as Sigel uses the term. To make the term more useful, and to include the ideas of Bronowski as well as my own, I will use the term a bit more broadly.

Distancing is crucial to man's intellectual and cultural development. Distancing is a process whereby man can separate himself from his thoughts by giving those thoughts some external form. So,

for instance, before Michaelangelo carved his famous David, he had already conceived of David visually and he then distanced that visual idea by converting it to marble. Man has found many ways in which to distance the products of his thinking. When he does so, his thoughts become available to himself for criticism and to other men for communication, learning, and criticism. By speaking to you now, I am distancing my thoughts from myself as I offer them to you. But, returning to the viewpoint expressed by Francis L. K. Hsu, it is what has been distanced in the form of a body of literature that makes it possible for a civilization to develop. Certainly the civilization that the western world has erected in the last two centuries has depended primarily on a body of verbal literature.

Jacob Bronowski would agree with this. Writing in that same marvelous compendium of essays I mentioned earlier, namely, To Honor Roman Jacobson, Bronowski says that the primary characteristic of human language that separates the human surely from the animal, that makes civilization possible, is that languaging provides the possibility for man of separating himself from his feelings by distancing those feelings in language; through languaging he makes it possible to prolong consideration of any fact or idea; and through languaging, man can distance his analysis and synthesis of what he knows achieving through distancing what Bronowski calls reconstitution.

Considering the enormous consequences for us of being able to distance our verbal languaging, and considering the even greater power for us of visual languaging, the nature and relative power of the visual languaging forms that surround us in the ever growing body of visual literature upon which our civilization increasingly depends deserves much more careful consideration. This is especially true if we are attempting to understand how we must reshape education, and how we can hope to understand the young people being reared now on visual languaging.

To begin, I want to recapitulate for you the material I presented a year ago concerning the location of visual languaging and visual literacy in the human brain. Prior to about 2 1/2 years ago, because few regarded visual languaging as languaging, no one apparently took the trouble to ask where such languaging might be in the human brain. The location of verbal languaging, however, was well established. The study of aphasias and work of neurophysiologists had established very firmly that for Indo-European languages, at least, the reading and writing of language nested predominantly in the left hemisphere of the human brain. This is true for nearly all people although some languaging capacity does settle in the right hemisphere.

It is from the evidence about aphasias, many of these are the results of strokes, that we are led to a very interesting conclusion. If a person who is literate in English has a left hemispheric stroke, he will probably lose the capacity to read and write in English. This is now regarded as almost a certitude for right-handed people and many left-handed people for whom English is their native language.

But are the consequences the same for people of other cultures? In an article in the Scientific American a neurophysiologist named Dr. Norman Geshwind wrote about what happens to Japanese people who have strokes. It is a fact and a vital one here, that spoken Japanese is represented by more than one symbol system. One of the systems is called Kanji, the other is called Katakana. Katakana is like English in this respect: The symbols that are printed on a page represent the sounds of the spoken language. So, for instance, in the word Katakana there are three symbols, one for Ka, one for ta and one for na. So, Katakana and English are similar in that what is represented on the page is the sounds of the spoken language.

The same is not true for the system of writing called Kanji. In Kanji, the symbol that is printed or written represents an idea not a sound. So, for instance, the word Tokyo might be represented by two symbols. One of those symbols means east, and the other means capital. The symbol does not mean the word east, but the idea east. The symbol does not mean the word capital, but the idea capital. When the two are put together, a Japanese thinks to himself, "oh, east capital, Tokyo."

Now, what happens if a literate Japanese person has a left hemispheric stroke? He loses the capacity to read and write in Katakana very much as he might lose the capacity to read and write in English if he were literate in English rather than Katakana. But what about Kanji? It is a most important fact for us that if the Japanese person has a left hemispheric stroke he does not lose the capacity to read and write in Kanji. This is apparently because Kanji is a symbol system in which the symbols represent ideas rather than sounds. Studying these facts, a year or so ago, I deduced that Kanji and perhaps all other visual literacies are in the right hemisphere of the human brain not the left. Since making this deduction I have encountered many other indications that this is so. In the time that has intervened, as additional facts have turned up, this hypothesis becomes more firm.

We won't discuss here many of the many parallels between visual languaging and verbal languaging but I would like to remind you of a few characteristics of visual language by calling your attention to the various ways we behave when we are visually languaging. It is evident to you all, I am sure, that visual and verbal language have sequence in common. That is, spoken verbal language is sequential in time, and sequential visual language is sequential in time.

Because visual language is sequential in character, we use it to tell stories, and we use it to give directions. Because is it so direct and humane a languaging system, visual languaging has led to the sequential form we call cartooning. Many of the best cartoon sequences are entirely nonverbal. With verbal language we make verbal jokes. The verbal joke we call a pun, for instance, depends on fooling the listener with a word that sounds like another word but is very different in meaning. In the old verbal joke we talk

about the doctor who fell into the well and then remarked that he should have tended to the sick and let the well alone. We can have visual puns too, and they are used often.

We can do things with visual languaging that it is difficult to do at all with verbal languaging. It is possible, for instance, to speak of two different things simultaneously in order to draw attention to commonalities that it is much more difficult to describe. So, for instance, in this double slide sequence, what is being discussed is a principle that transcends both donuts and snowmen.

Using sequential visual languaging techniques it is possible to deal with multiple causation, that is, interrelationship of more than two factors in a series of developments. This can be done with images on the printed page and some of these are pretty successful even though they look complicated at first glance. The sense of interrelationship that comes from studying such carefully contrived visual patterns, however, is very much superior to the conception that can be obtained by attempting verbal explanations. With motion, and two and three screens, the power of the visual to transmit concepts becomes even greater. The possibilities of this form of languaging are only really beginning to be explored, but it is already possible to say that conceptual powers through visual languaging have already transcended the powers of prior generations.

But let's turn our attention to some other behavioral aspects of the use of visual languaging. To illustrate a very human one that has its counterpart in verbal languaging, I am telling you a little story that has a catch in it. Let's go back to the beginning and look at it again while I tell you the story of the experiment.

Ten men were given the opportunity to see the pictures that you have just seen but the pictures were spread out on a table and arranged, like snapshots, left to right. They had, in other words, full freedom to go back and forth between the pictures, and to look at each picture as often as they liked. When they were through, they were asked to go out of the room and each was asked to write a paragraph or so to tell in words what the picture story was about. All ten stories agreed that the sequence began with someone turning the light on and ended with someone turning the light off and leaving the room or some such thing. Only one of the viewers called the attention of the researcher to the fact that although he understood the ending of the story very well, the researcher had used the wrong picture. In fact, what the researcher had done, was include the last picture deliberately and upside down so as to mislead the reader.

What this illustrates is a commonly observed aspect of human communication. How many times have you said to someone "I know very well what she means, but she just doesn't express herself very well." Or how many times do we say "I get the point; but he used the wrong word." As human readers of communications with which we

are concerned, we are so anxious to understand the thread of meaning in a verbal sequence or a visual sequence, that we will read a wrong word or a wrong visual sign correctly because we want to understand and in fact do understand the intent of the communicator.

All of the last few minutes have had the purpose of letting you see that our behavior with respect to visual languaging is very much like our behavior with respect to verbal languaging. But if this is so, that is if verbal languaging and visual languaging are used in very similar ways and we behave in very similar ways when using them, how does it happen that the advent of visual languaging in the American home via television is being blamed for making education more difficult. Is there some justification for feeling that visual languaging experiences begun early in life are having some adverse consequences for the acquisition of verbal languaging skills?

From an educational viewpoint, the most alarming statistics as you are all well aware have been those connected with the scholastic achievement tests. Over some years, up until 1964, these measures crept comfortably upward year after year. We patted ourselves on our backs and thought that we must be doing something right. They crept up until 1964. In that year they dropped just a little. In the years after they dropped a little more and a little more each year a bit more steeply until in 1975 the verbal scores dropped 10 points in a single year.

What possible explanation for this can there be? Have teachers deteriorated in their capacity for teaching? We know we have been training them better. Have students become less bright? The Stamford Benet tests tell us differently; they tell us that the IQ of today's student entering elementary school is higher than the student of years ago. More to the point, they tell us that the IQ of the student leaving high school is considerably above that of the students of years ago.

Could the cause be television and visual languaging? The average age of the student taking SAT tests is between 17 and 18 years. Let's go back to our central hypothesis and say to ourselves that if the child who has TV in his home during his first year of life learns visual languaging from TV, it may have a profound effect on his learning style. With this idea in mind, I plotted the curve showing the percentage of American homes having TV beginning with the first year in which there were very many TV sets in the American homes. That year was 1947. An infant having TV in his home in 1947 would take his SATs test 17 years later; that year is 1964. 1964 is the first year in which there was a slight drop in the SATs scores. Looking at the curves as I present them here, you can see how rapidly the home ownership of TV rose so that in only about 18 years home ownership was nearly 100%. If we turn the curve for the percent of homes having TV upside down, the interrelationship between the two sets of curves becomes easier to see. With the curves presented this way, you can see why I feel relatively certain when I say that we can expect the SAT verbal scores to drop even further and in fact to continue to drop until the TV ownership curve flattens off at close to 100%.

Is visual languaging indeed the cause of this drop in the verbal SATs? Is visual languaging the cause of the rise in the IQ scores? If so, what explanations underlie the drop? Why does not the learning of one language make easier the learning of another?

I have some conjectures. You have been reading the halting visual languaging that I have been presenting on these two screens. You have not been reading from left to right. The pictures change in front of you in time but they do not require your moving your eyes from left to right in space the way you do when you are reading words. Infants learning visual languaging on TV and in movies learn to read visual language that does not require their eyes becoming skilled in left to right visual sequence. The skill is in reading sequentially in time not space. It comes closer to the skill in listening to words spoken because these are also sequential in time not space.

How do we make a person verbally literate? First we teach him to talk, we teach him verbal languaging, and when he talks reasonably well, we try to teach him to read and write. In other words, he first acquires a skill in interpreting verbal signs sequentially in time. After that, we give him experience in dealing with words that are arranged sequentially in space.

But today's children have learned to see visual language sequentially in time. Is there a way in which we can move them closer to the spacial sequential skills we want them to have verbally? The answer is that because we know they are learning daily to read visuals sequentially in time, we can have them arrange pictures sequentially in space left to right, as we hope later they will be able to arrange words left to right. Many experiments with many children show that these kinds of experiences do indeed have beneficial consequences for today's children. Having saturated the right hemisphere with visual language, we find ourselves under the necessity to give that hemisphere an opportunity to organize itself, to look at itself, to understand itself. What we must give today's children, in other words, is the opportunity to distance their visual thinking by using visual language. The visual images with which they have learned to think, need to be distanced so that they can scrutinize, analyze, reorganize, or recreate the things they have learned visually. Once the visual material is organized, once the visual languaging process has had a chance to mature, then translation from visual languaging forms to verbal languaging forms becomes relatively easy.

To understand better what we are doing, when we are attempting to do this, let's look at a model of the kind of development I believe has occurred, and the kind of development we hope to achieve. We can begin by looking at human languaging and human cognition from the standpoint of what it is possible for a Japanese person to do.

The first two languaging forms that a child learns are gesturing that is an evanescent visual language, and speaking, an evanescent

spoken (verbal) language. Each of these tends to lateralize that is to migrate or drift toward a particular hemisphere. Gesturing tends to lateralize in the right hemisphere. Speaking tends to lateralize in the left hemisphere. If we ask ourselves whether gesturing improves our capacity to make gestures, we will almost certainly answer yes. We know that becoming skilled in any kind of communication is accelerated by having experience in making that kind of communication. So, using gestures improves our gesturing skills and deepens the hold of gesturing on the right hemisphere. Similarly, experience in speaking improves our ability to speak and that of course increases the hold of speaking on the left hemisphere.

Does making gestures while we speak affect the way we speak and the eloquence of our speech? The question almost answers itself; we know that this is true. Experience in speaking, therefore, affects our skills in gesturing, an experience in gesturing affects our skills in speaking. There is, therefore, an interaction and interplay between the right hemisphere and the left hemisphere.

What happens when we learn a di tancing form? We already know that verbal distancing settles firmly in the left hemisphere if a person is using Indo-European language or if he is using the Japanese written language called Katakana. In brief, distance verbal languaging skills do establish themselves in the left hemisphere, and having done so, begin to affect the other left hemispheric skills. What about the distancing for the right hemisphere? For the Japanese who writes with Kanji, there is no doubt. Kanji appears to settle firmly in the right hemisphere of the human brain, and having settled there begins to influence the other right hemispheric skills. Once these visual languaging skills in distancing are settled in the right hemisphere, they begin to affect gesturing and the visual aspects of cognition. Experience tells us that other interrelationships spring up. For instance we know that writing verbal language and reading verbal language affects our speaking and affects our gesturing. We also know that it must be true for the Japanese that skills in writing in Kanji will have an effect on both speaking and gesturing.

We know from many experiments in this country that if someone is exposed to a sequence of words and then to a sequence of pictures that are related, the previously perceived sequence of words has an effect on the perception of the pictures. The reverse is also true: That is, a sequence of pictures previously perceived will change the perception of a sequence of words that is seen later. In other words, distanced visual language has an effect on distanced verbal language and vice versa. Our chart, therefore, needs one more line, a line that is a powerful one for the Japanese. In fact, now, we can look at this structure showing interrelationships between speaking and gesturing skills, reading and writing of the verbal kind, and reading and writing of the visual kind, and see that for the Japanese there are at least three lines on this chart

that do not exist or are not cultivated in American schools. By having consistent and assiduous practice in visual languaging through Kanji, the Japanese develop their right hemispheric skills in distancing ideas visually. When they do so, they order the right hemisphere as illustrated by line A on the model. They make it possible for the order of the right hemisphere and the Kanji distancing skills in visual languaging to affect both speaking and gesturing style. But perhaps most importantly of all, they make it possible for an interplay to exist between visual language distancing skills and verbal language distancing skills. I don't think I need to prove to you that Japanese children are favorably affected by the fact that they are able to distance their thoughts in both a visual and a verbal language. A couple of reminders of some of the facts however may be useful to you. Reading disabilities among Japanese children are almost nonexistent. One estimate puts them as low as 6/10 of 1 percent; American children by contrast are often at the 30% level.

I think it should be evident to you now the direction in which I am leading you. It is clear from the model that our children would be better off if they had regular experience in developing their visual languaging skills. We don't have a visual language like Kanji, but we do have sequential visual communication through video, movies, slides, cartoons, and all the rest. When we try to do this, does it work? I'll tell you a little story.

In his wonderful film series, called the Ascent of Man, Jacob Bronowski said that the democracy of the intellect began when the invention of printing and the printing press made books possible. A beginning, yes! But a beginning for only the 23% of the population that is inclined to be verbal. What about all the rest?

All the rest? Yes, the majority of young people and of the general population that are visual. They await our leadership, they await us a verbally trained and skilled group of people whose task it now is to lead them to literacy in visual languaging. The task before us is to provide every child at every grade level with such systematic opportunities to personally distance his own visual language that he will become visually literate indeed.

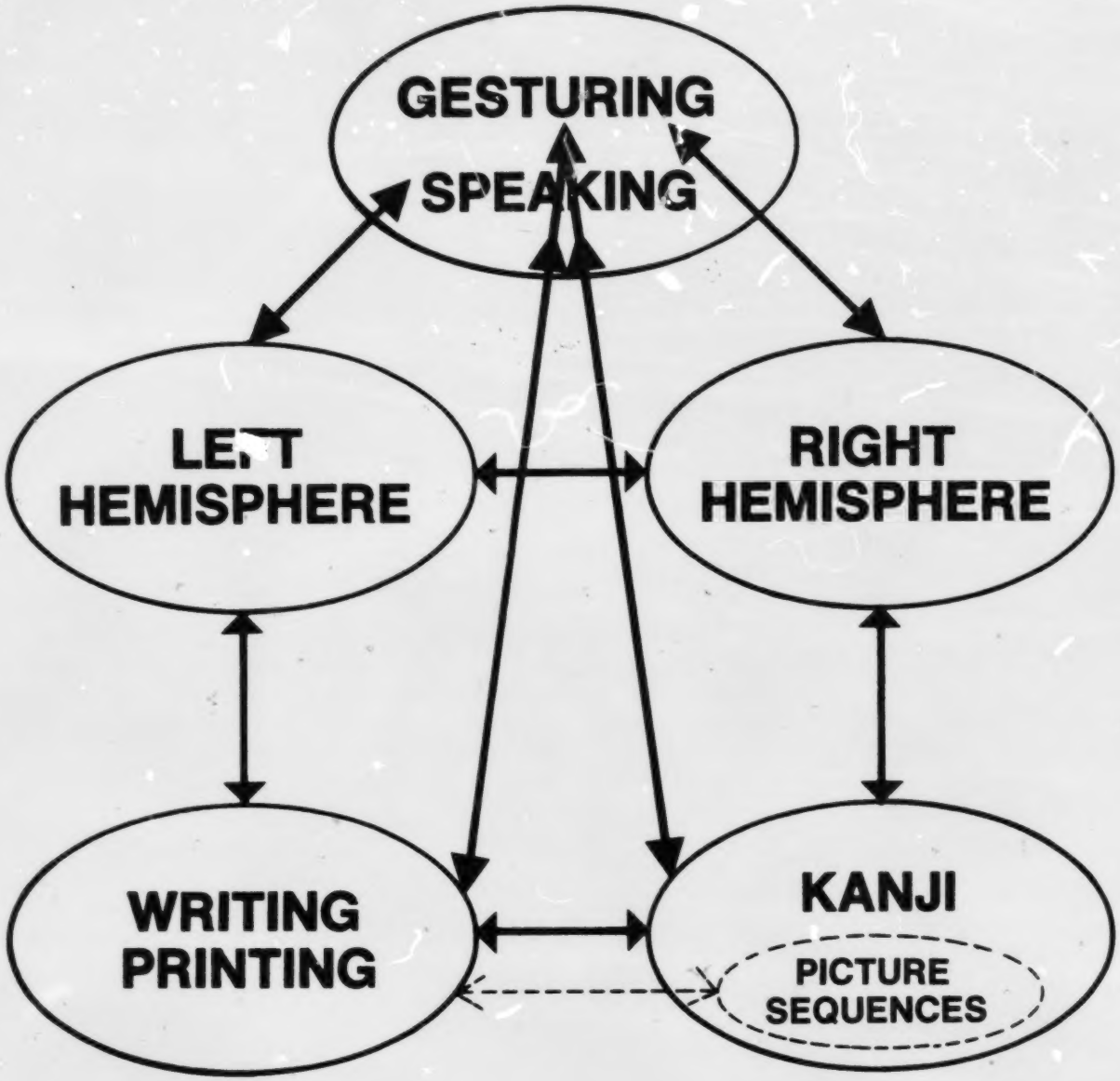
Once the right hemisphere is developed, its interrelationship with the left hemisphere and the left hemispheric verbal languaging skills can proceed toward cognitive and cultural goals that could not possibly be achieved with either set of languaging skills alone.

At the end of the Eyeful Power, last year, I said that the consequences of developing such languaging powers will be interactive between the two hemispheres. The results will be skills in communication that transcend what we have achieved in the past, and levels of cognition beyond those we can imagine. We can expect to

educate the whole person to function more happily to communicate more effectively, to cope more successfully and to want to do all these things and believe that he can. All of this can become possible when we add to the power of the left hemisphere and verbal literacy the power of the right hemisphere the power of the eye.

That is what I said last year. To that I add now the new dimension offered us by Bronowski. What we face, now, ladies and gentlemen is the beginning of the most exciting development in the history of man and the history of man it is the beginning of the new democracy of the intellect, the true democracy of the intellect, it is the beginning in fact of the democracy of the intellect.

INTERRELATION OF LANGUAGING AND LITERACIES



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